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CONTINGENCY FORCE SIZING

D. Sean Barnett

September 1992



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13. ABSTRACT (Maximum 200 words) The study objective was to assess the impact of the problems driving U.S. contingency force size, and to assess the value to the force of a reconnaissance/strike complex (RSC). The study identified four problems: inserting the force, defending against armored attack, defending against infiltration, and logistics. To assess their impact, it drew upon the histories of previous operations, military literature, professional judgment, and the IDA-developed VFM combat model. Force insertion is not trivial, but in the past the U.S. has inserted contingency forces without great opposition. Once ashore, U.S. forces could use an RSC of sophisticated targeting capabilities and precision strike munitions to defeat large armored opponents. However, future contingency operations might find U.S. forces in close terrain, facing infantry-based infiltration attacks. Today the U.S. would require a large ground force to defend a position in such a situation. That force would require and would have to defend a sizable logistical infrastructure to support itself away from a permanent base. The study found that that force would be much larger than the RSC-supported force required to defeat an armored attack. Furthermore, it would be very difficult to lift and supply such a force by air.				
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INSTITUTE FOR DEFENSE ANALYSES

IDA Central Research Program

PREFACE

This document is a briefing of the results of a study conducted under the IDA Central Research Program. This study determined, and assessed the impact of, the problems driving U.S. contingency force size, and assessed the value to the force of a reconnaissance/strike complex. The study identified four problems: inserting the force, defending against armored attack, defending against infiltration, and logistics. To assess their impact on force size, it drew upon the histories of previous operations, military literature, professional judgment, and the IDA-developed VFM combat model.

Dr. William Schultis, Dr. Victor Utgoff and Mr. John Tillson of IDA's Strategy, Forces and Resources Division reviewed the briefing, and the author presented it to the IDA Visiting Committee on June 9, 1992. The author would like to thank Ms. Erika Tildon and Ms. Barbara Fealy for their help in preparing this document.

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OBJECTIVE

Assess the size of a contingency force required to seize and maintain a temporary foothold:

- in hostile territory
- against a numerically superior but militarily and technologically inferior regional opponent.

Assess the impact of a reconnaissance/strike complex (RSC) on contingency force size



APPROACH

- Identify problems that affect the size and character of the contingency force.
- Assess their impact for force planning.

Problems

- Inserting the force
- Defending against armored attack
- Defending against infiltration
- Logistics



ARMORED ATTACK

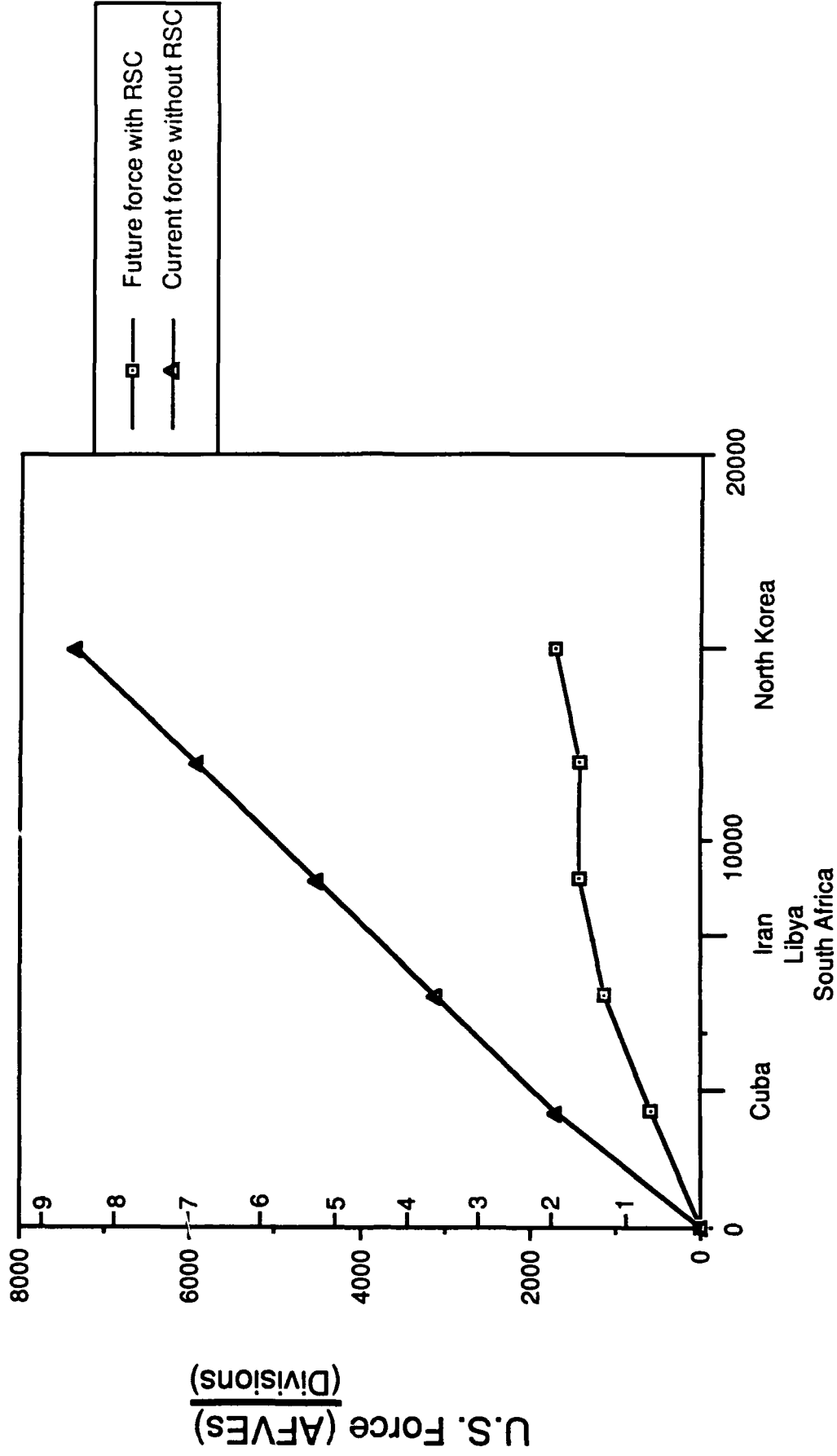
How large would a U.S. contingency force have to be to defeat an armored attack by a typical regional opponent?

Approach

- Modify the Variable Force eMployment (VFM) combat model to simulate combat in an isolated circular foothold containing a strategic objective
- Simulate combat between a small, medium-weight U.S. contingency force and large, armored, but technologically and militarily inferior regional forces

Defense Against Armored Attack

Force Requirement



Regional Force (AFVEs)



INFILTRATION

How large would a U.S. contingency force have to be to protect itself and its logistical infrastructure against infiltration?

Approach

- Look at historical examples of U.S. forces defending against infiltration—Marines around Da Nang Airbase, 1965-1971
- Draw upon military judgment regarding unit frontages and force densities required to limit enemy infiltration.



RESULTS OF INFILTRATION ASSESSMENT

Unit frontages

- Open terrain: 50 km per division
- Close terrain: 35 km per division

Security force coverage

- 190 km² per battalion, or 1500 km² per division



LOGISTICS

How much supply does the contingency force require, and how large must the foothold be to accommodate the force's logistical infrastructure?

Approach

- Look at historical examples of U.S. contingency operations and U.S. forces maintaining footholds—

Desert Shield/Storm, August 1990-February 1991

The Normandy buildup, June and July 1944.

- Consult Army planning factors regarding unit supply requirements and the sizes of logistical infrastructures.



LOGISTICAL REQUIREMENTS

Supply

- 24th Mechanized Div., Desert Storm: 4300 tons/day
- Medium-weight "contingency" division: 3000 tons/day
- Wing of tactical aircraft: 850 tons fuel/day, 850 tons ordnance/day

Logistical support areas

- VII Corps COSCOM, Desert Storm, and Heavy Corps Logistical Support Area plus Division Support Areas, Europe: 1600 km² per corps
- Normandy buildup—30,000 tons/day (~10 div) into 2800 km² of rear area: 860 km² per corps
- Medium-weight corps, scaled proportionally to supply requirements: 1150 km² per corps



INFILTRATION AND LOGISTICS—SIZING THE FORCE

Logistics defines the area required per division (D), or the minimum size of the foothold:

$$r = 15 + (383D/\pi)^{1/2} \text{ km}$$

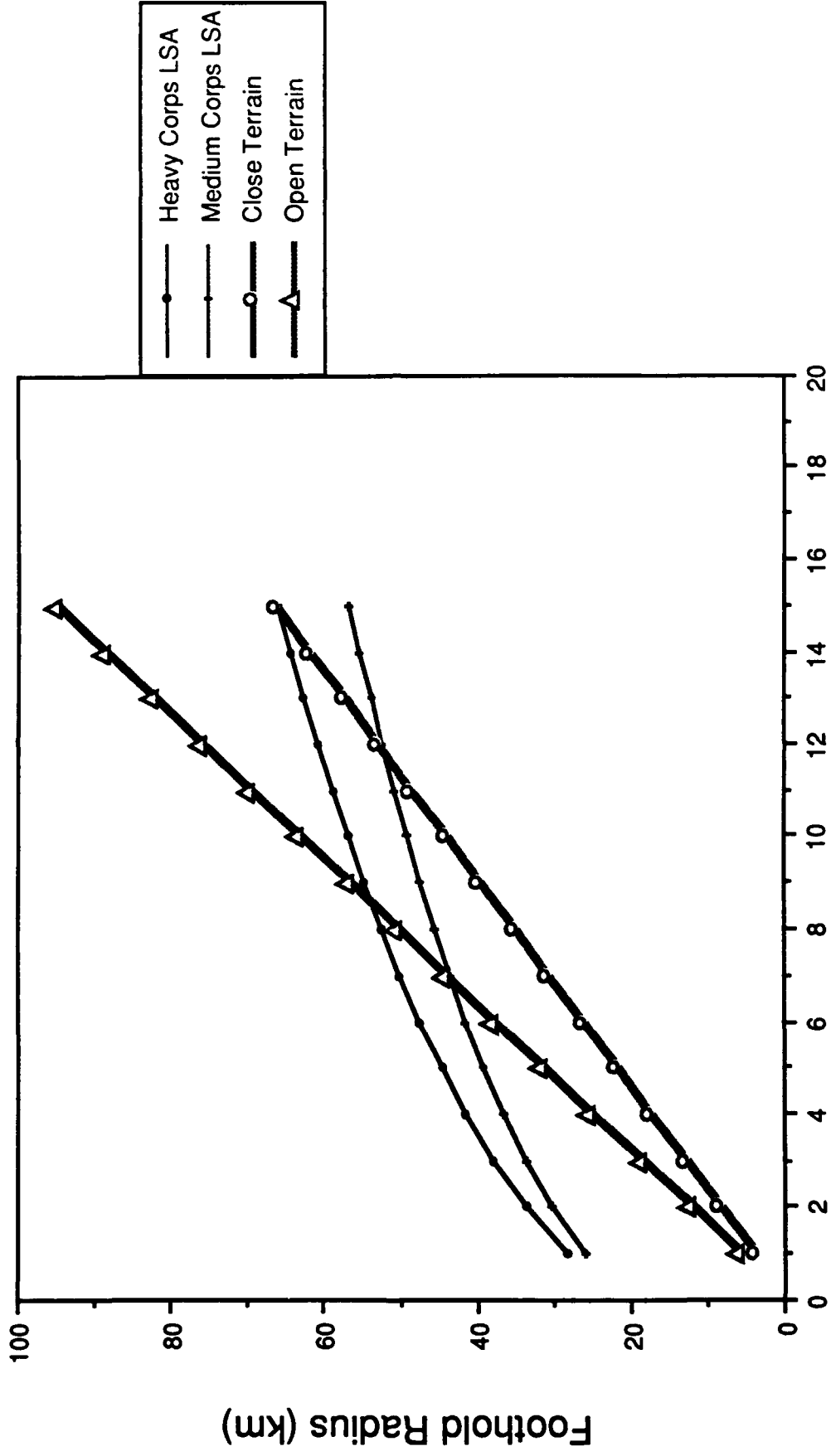
Infiltration defines the force required per perimeter length, or the maximum size of the foothold:

$$r = 40D/2\pi \text{ km}$$

- Logistics and infiltration together set the minimum force size

Logistics and Infiltration

Minimum Force Size



Divisions

10



FORCE WEIGHT

<u>Division</u>	<u>Tons</u>	<u>Sorties to Lift</u>
Armored	96,580	1062 C-141 + 787 C-5
Air Assault	32,547	1274 C-141 + 82 C-5
Contingency	30,000	835 C-141 + 107 C-5
Light Infantry	14,436	648 C-141 + 18 C-5

TOTAL CONTINGENCY FORCE WEIGHT

	<u>Armored Attack</u>	<u>Infiltration</u>	<u>Total</u>
Current	9 CD 7500 C-141 + 1000 C-5 60%	5CD + 2LID 5500 C-141 + 580 C-5 40%	16 Div 13,000 C-141 + 1600 C-5
Future	2CD 1700 C-141 + 210 C-5 25%	5CD + 2LID 5500 C-141 + 580 C-5 75%	9 Div 7200 C-141 + 790 C-5

AIR TRANSPORT CAPACITY

<u>Aircraft</u>	<u>Sorties Per Day</u>
250 C-141 115 C-5 406 CRAF (210 C-17)	1/2 to 1



SUMMARY

The reconnaissance strike complex can significantly reduce the armored threat to the contingency force.

However, infiltration and logistics still keep the minimum force level relatively high.

Addressing the infiltration problem appears to be the most effective way of reducing the force size.



POTENTIAL CONTINGENCY FORCE STUDIES

Advanced Anti-Infiltration Technologies

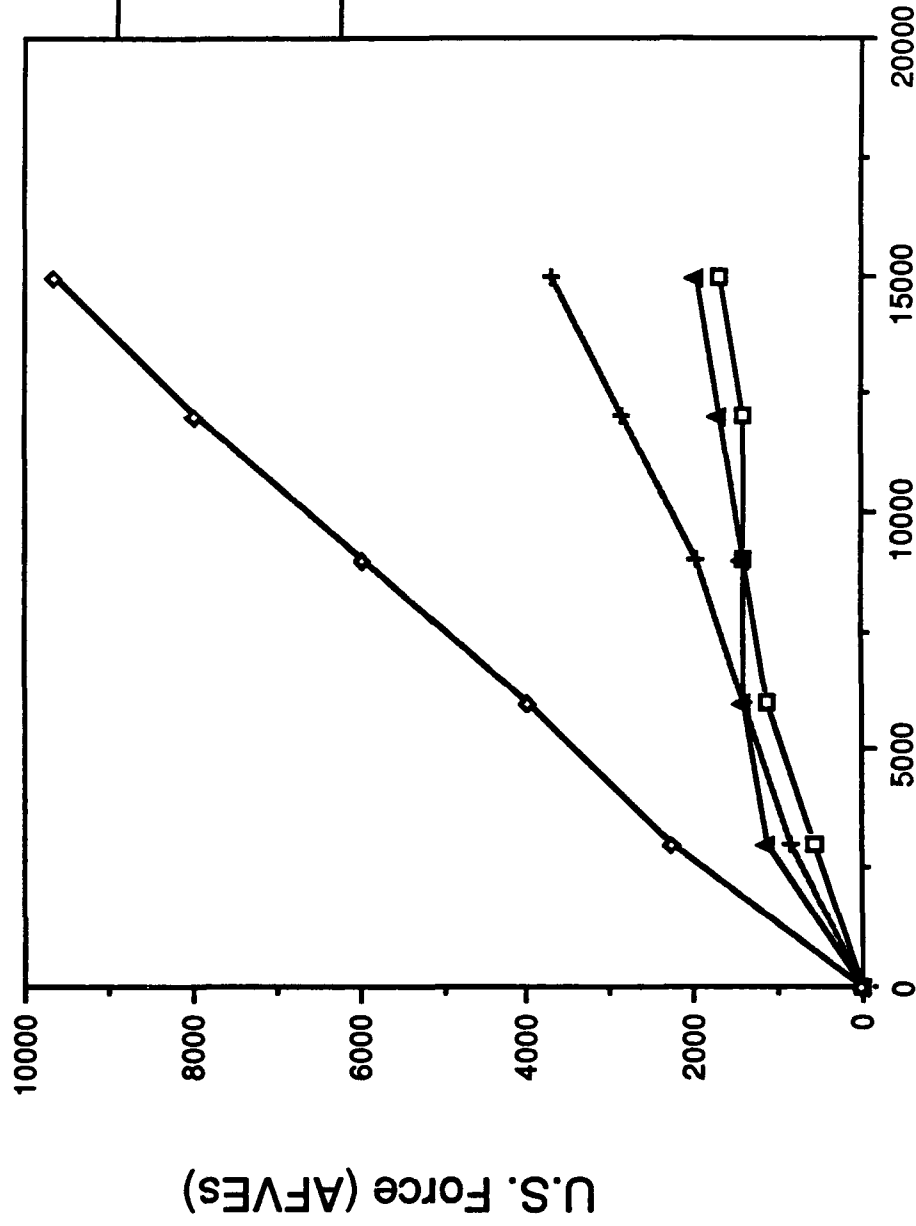
Reconnaissance/strike complex for infiltrators
Netted, remotely deployable, personnel-detecting sensors
Operational techniques

Hardening the Contingency Force Logistical Infrastructure

Contingency Force Rapid Resupply

Effects of Air and ACM

Force Requirement



Regional Force (AFVEs)